

Name \_\_\_\_\_



## How Ocean Waves Move

By Cindy Grigg

Playing in ocean waves can be fun! Did you ever wonder what causes ocean waves? Ocean waves can be caused by three things. One cause is gravity. Gravity from the moon and sun pulls on ocean waters. This causes the tides. Tides cause very long ocean waves. They happen at regular times. There's a high tide, and about six hours later, there's a low tide. Earthquakes are a second cause. Earthquakes under the oceans can cause giant waves called tsunamis. The third cause is the wind. The wind makes waves as it blows across the surface of the ocean.



Most of the surface waves we see on the ocean are caused by wind. When winds blow across the ocean, some of the energy of the wind is passed to the water. Some of the water is moved by friction. If the wind's speed is great enough, water begins to pile up, forming a wave. The stronger the wind is, the bigger the waves. As the wind continues to blow, the waves get bigger and bigger. The height of waves depends on the speed of the wind, the distance over which the wind blows (called the fetch), and the length of time the wind blows. Oceans have bigger waves than lakes because the fetch is bigger.

Waves don't actually move the water forward very far. Each particle of water in a wave moves in a circle. Energy moves forward. The water particles stay in almost the same place. It's a lot like a row of dominoes falling. The energy from the first domino moves forward, hitting the second domino. Then that one falls, too, hitting the next one, and so on. Energy moves forward, but the dominoes stay where they are. The moving energy changes their position only slightly.

You can see this by floating a cork on a bowl of water. Splash a spoon in the water at the side of the bowl. As each wave you make

passes, the cork moves up and down. The water is also moving up and down. The cork doesn't move to the side of the bowl.

Waves stop forming when the wind stops blowing. Once the water starts moving, the waves keep going for long distances. The waves you see at the shore began many miles out at sea.

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### Questions

1. Ocean waves can be caused by three things. What are they?

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\_\_\_\_\_ 2. What causes most of the surface waves on the ocean?

- A. tides
- B. earthquakes
- C. wind
- D. none of the above

\_\_\_\_\_ 3. What is the wind's fetch?

- A. speed of the wind
- B. distance over which the wind blows
- C. length of time the wind blows
- D. all of the above

\_\_\_\_\_ 4. Each particle of water in a wave moves outward, traveling from the wave's source to the shore.

- A. true
- B. false

\_\_\_\_\_ 5. The stronger the wind is, the bigger the waves.

- A. true
- B. false

